

CLAIMS

What is claimed is:

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1. A method for enhancing IMC flight aboard an aircraft, comprising the steps of: collecting navigation and attitude data from the aircraft; generating a display as a function of the data to show a perspective view of earth ground and horizon that are substantially conformal with a VMC view from the aircraft; and generating at least one of a current or next waypoint symbol on the display.
 2. A method of claim 1, wherein the step of generating at least one of a current or
10 next waypoint comprises the step of generating a first symbol at the horizon to indicate the current waypoint.
 3. A method of claim 2, wherein the step of generating at least one of a current or next waypoint comprises the step of generating a second symbol at the horizon to indicate the next current waypoint.
 - 15 4. A method of claim 1, further comprising the step of selecting a desired current waypoint, wherein the steps of generating comprise altering the perspective view to match the selected waypoint.
 5. A method of claim 4, wherein the step of selecting comprises electronically moving the symbol on the display.
 - 20 6. A method of claim 4, wherein the step of selecting comprises adjusting navigation settings aboard the aircraft to alter the data.
 7. A method of claim 1, further comprising generating one or more situation awareness symbols on the display.
 8. A method of claim 7, wherein the step of generating one or more situation
25 awareness symbols comprises generating one or more of the following: an attitude symbol reflecting aircraft speed; an attitude symbol reflecting aircraft altitude; an attitude symbol reflecting aircraft pitch; and a compass symbol reflecting heading.
 9. A method of claim 7, wherein the step of generating one or more situation awareness symbols comprises generating one or more landmarks.

10. A method of claim 9, wherein the step of generating one or more landmarks comprises generating an airstrip conformal with the earth ground perspective view.

11. A method of claim 1, wherein the step of collecting navigation and attitude data from the aircraft comprises acquiring aircraft speed and altitude from air and attitude instruments of the aircraft.

12. A method of claim 1, wherein the step of collecting at least one of navigation and attitude data from the aircraft comprises acquiring one or more of the following from navigation instruments of the aircraft: direction to next waypoint, last waypoint information, and left/right deviation.

13. A display system for IMC, comprising: an information collation unit for acquiring data from navigation and attitude instruments of an aircraft; and an image processing unit for (a) generating a display as a function of the data to show a perspective view of earth ground and horizon that are substantially conformal with a VMC view from the aircraft and (b) generating at least one of a current or next waypoint symbol on the display.

14. A display system of claim 13, the information collation unit acquiring aircraft speed and altitude from the air and attitude instruments of the aircraft.

15. A display system of claim 13, the information collation unit acquiring information including direction to next waypoint and last waypoint direction from the navigation instruments of the aircraft.

16. A display system of claim 13, further comprising a monitor for showing the display within the aircraft.

17. A display system of claim 13, the image processing unit generating the current waypoint collocated with the horizon.

18. A display system of claim 13, the image processing unit generating the next waypoint collocated with the horizon.

19. In an IMC navigation system within an aircraft, the improvement comprising an image processing unit for (a) collating navigation and attitude data from the system, (b) generating a display as a function of the data to show a perspective view of earth ground and horizon that are substantially conformal with a VMC view from the aircraft, and (c) generating at least one of a current or next waypoint symbol on the display.

Figure 1. Schematic representation of the experimental design. The figure shows a sequence of 12 panels illustrating the experimental design. The panels are arranged in a vertical column, with the first panel at the top and the last panel at the bottom. The panels are labeled as follows: 1. Introduction of the stimulus (a red dot), 2. Fixation period (a red dot), 3. First saccade (a red dot), 4. Second saccade (a red dot), 5. Third saccade (a red dot), 6. Fourth saccade (a red dot), 7. Fifth saccade (a red dot), 8. Sixth saccade (a red dot), 9. Seventh saccade (a red dot), 10. Eighth saccade (a red dot), 11. Ninth saccade (a red dot), 12. Tenth saccade (a red dot). The panels show the sequence of saccades and the corresponding eye positions. The red dot represents the target location. The eye positions are indicated by the black dots. The sequence of saccades is shown by the arrows. The panels are labeled as follows: 1. Introduction of the stimulus (a red dot), 2. Fixation period (a red dot), 3. First saccade (a red dot), 4. Second saccade (a red dot), 5. Third saccade (a red dot), 6. Fourth saccade (a red dot), 7. Fifth saccade (a red dot), 8. Sixth saccade (a red dot), 9. Seventh saccade (a red dot), 10. Eighth saccade (a red dot), 11. Ninth saccade (a red dot), 12. Tenth saccade (a red dot).